



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

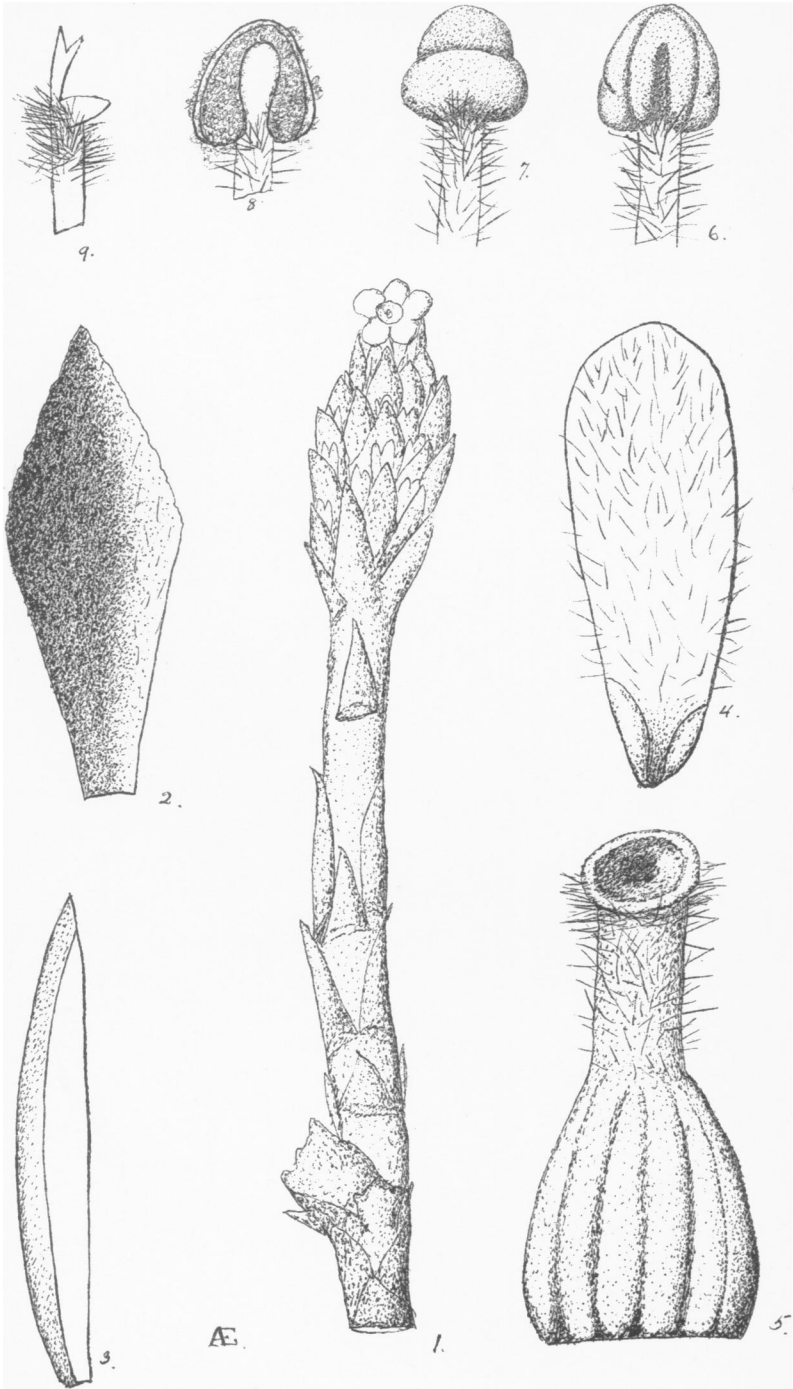
We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.



FRITILLARIA PURDYI



MONOTROPA CALIFORNICA

Some new Species of Californian Plants

BY ALICE EASTWOOD

(WITH PLATES 6 AND 7)

Fritillaria Purdyi (Plate 6)

Corm with fibrous roots, deep-seated, with a large bublet on one side and a very small one on the other; stem flexuous, enlarged below the leaves, extending underground 15 cm.: radical leaves opposite but apparently whorled in 3 pairs, thick, pale green, oblong-lanceolate; the outer 3 cm. broad, 9 cm. long; the inner about half as broad and of almost equal length; margin strongly undulate, crisped along the very edge; cauline leaves 4, alternate, lanceolate, obtuse or callous-tipped: flowers 1-2, 2.5 cm. long, white, mottled with purple in lines and spots, on erect pedicels that recurve at apex; outer divisions obovate, 13 mm. wide, slightly incurved at base, the middle marked by a greenish-yellow band which later becomes purple; inner divisions oblong-lanceolate, as long as the outer but narrower, 8 mm. wide: stamens with versatile anthers, filaments 1 cm. long: ovary 6-ribbed, cylindrical, 5 mm. long, spotted with purple, tipped by the style, which is 2 mm. long: fruit purplish, obconic-orbicular, obtusely 6-sided, each side being marked by a prominent nerve but without wings or ribs, abruptly tapering at base, flat on top, about 15 mm. long: seeds somewhat thickened on one side, winged on the opposite side, 6 mm. long.

This description was drawn from fresh specimens sent by Carl Purdy in whose honor it is named. The specimens were grown in Mr. Purdy's garden in Ukiah from bulbs sent by Mr. Charles Lowe from Kneeland, Humboldt county, California. It was blooming in April in Mr. Purdy's garden and the ripe fruit was sent to me by Mr. Lowe, May 27. He collected it where he had collected the original bulbs. Mr. Lowe also sent blooming plants in April which were not so tall nor so luxuriant as those from which the description was made. The type is in the herbarium of the California Academy of Sciences. The drawing, from the fresh specimen, was made by Miss Margaret W. Buck.

Monotropa Californica (Plate 7)

Stems solitary or in clumps, about 1 dm. high, glabrous, waxy-white: leaves deltoid to ovate, sessile by a broad base, acute, entire or slightly erose, 1-2 cm. long, about 6 mm. wide at base: flowers

in a densely-flowered erect spike, terminating the erect stem, containing about 15 flowers; bracts similar to the leaves, but narrower, the upper ones becoming spatulate with broad, short petioles; terminal flower first in bloom, with 5 petals and sepals and 10 stamens; lower flowers with 4 petals, 2-4 sepals and 8 stamens; sepals rhomboidal oblanceolate or linear, keeled, the blade when present about as long as the claw, altogether 12 mm. long, 2-4 mm. wide, margin slightly erose, outer surface glabrous, inner sparingly hairy: petals oblong-obovate, 12 mm. long, 4 mm. wide, densely hairy within, saccate at base, the sac containing nectar, lower margin ciliate, upper erose and sometimes slightly cleft on one side: stamens linear, ribbon-like, woolly, most densely so under the anthers, alternately long and short, 6-7 mm. long, .5 mm. wide, without any dilation at base; anthers bright red, shaped like a strawberry, opening by two equal slits on each side; pollen white: ovary 4-5-lobed, with each lobe obtusely 2-ribbed; style thick, as long as the ovary, densely woolly, especially below the yellow depressed-capitate stigma which is hairy at the center and around the viscid yellow outer rim.

The entire plant, except the red anthers and yellow stigma, is pure white and without any odor, except an earthy smell like a fungus.

Its erect habit at once distinguishes it from *Monotropa Hypopitys* to which it is most closely allied. The stamens seem different from those of other species of *Monotropa*, judging by the figures and descriptions. These were probably made from dried specimens and perhaps from stamens from which the pollen had been discharged.

This species was found on a hillside bordering Little Carson Creek, in Marin county, California. The hill was covered with a dense growth of small trees of *Quercus densiflora*. *Clintonia Andrewsiana* was abundant and occasional specimens of *Coralorhiza Bigelovii* and *C. multiflora* were found near by. The first specimen (in bud) was found on May 12th. This was a solitary plant. On May 30th a clump of five plants was found in the same neighborhood, but no more have been seen though searched for diligently.

Unless the anthers are peculiar, this belongs to the section *Hypopitys*, which is considered a distinct genus by some botanists.

Type in the herbarium of the California Academy of Sciences.

Cycladenia venusta

Stems low, 1-1.5 dm. high, several from a horizontal woody rootstock, glaucous and glabrous throughout except the flowers: lowest leaves scale-like; the others broadly ovate to orbicular, 2-6 cm. in diameter, coriaceous, prominently nerved; apex obtuse, acute, or abruptly acuminate; base broadly cordate or cuneate; margin entire or slightly undulate; petioles broad, flat, longer than the blades on the lower leaves, shorter on the upper, connate-clasping: flowers in axillary corymbs, 3-7-flowered; peduncles rather stout, generally shorter than the leaves; pedicels less than half as thick, glabrous or sparingly pubescent, 1.5-3 cm. long; bracts ovate-acuminate, glabrous externally, with a few scattered hairs within and on the margins, about 5 mm. long: divisions of the calyx extending almost to the base, linear-lanceolate, 5 mm. long, 1 mm. broad, clothed on both sides with scattered, spreading hairs: corolla funnel-form, with tube slightly shorter than the calyx, limb almost 2 cm. long, lobed about half way with five equal orbicular-oblong lobes, 7 mm. in diameter, bright rose-color, hairy externally, especially on the tube, somewhat pubescent within and viscid: stamens with short, hairy filaments, inserted at the top of the tube on the ribs; anthers sagittate with the apex and tips cuspidate: stigma as in the genus: follicles glabrous and glaucous, immature, 4 cm. long.

This beautiful species was first collected by the writer on the summit of Santa Lucia Peak, in Monterey county, California, June 9, 1893. It was collected by Mr. R. A. Plaskett on Cone Peak in the same range of mountains in fruit in 1898.

It differs from *Cycladenia humilis* Benth. in the shape of the leaves, much larger flowers, corolla with shorter tube and more open-campanulate border, and the pubescence of the flowers.

Type in the herbarium of the California Academy of Sciences.

Potentilla Hickmani

Perennial from a woody tap-root; the caudex densely clothed with the brown, dry stipules and petioles; stems low, decumbent, 8-15 cm. high, sparingly clothed with appressed hairs: leaves mostly radical, with generally six pairs of rather distant, petiolulate leaflets; these cuneate, digitately 3-4-cleft or divided, with linear or lanceolate divisions, 2-8 mm. long, 1-3 mm. wide, veiny, glabrous or with a few scattered hairs on the upper surface, more densely appressed-hairy on the lower; stipules attached to the petiole, the free portion linear-acuminate, about 5 mm. long; cau-

line leaves few and distant, with large, obliquely ovate stipules which are adnate to the petiole up to the blade; these are similar in form to the leaflets but larger: cyme with 2-4 branches, each 1-2-flowered: calyx clothed with appressed pubescence, more densely so at base; divisions ovate, obtuse, 6 mm. long, 3.5 mm. wide: bractlets $\frac{1}{2}$ as long, ovate: petals yellow, 6 mm. long, 5 mm. wide, cordate with shallow sinus: receptacle white-hairy: filaments narrowly subulate, 2 mm. long: style slender, attached to the akene a little below the apex, glabrous, 3 mm. long: akene glabrous, gibbous.

This seems to come nearest to *Potentilla Plattensis* Nutt., from which it differs in having larger flowers, with obtuse calyx lobes and bractlets and digitately cleft leaflets less imbricated. The broad stipules are noticeable on the cauline leaves, those on the radical leaves being much narrower.

This was collected in a forest of *Pinus radiata* Don., near the reservoir which supplies Pacific Grove, California, along the road to Cypress Point, April 4, 1900. It is named in honor of Mr. J. B. Hickman who has collected many interesting plants in Monterey county and who was my guide on the trip on which this was collected.

Type in the herbarium of the California Academy of Sciences.

Orthocarpus psittacinus

Perennial, stems several from a branched caudex, generally also branching above, 1.5-2 dm. high, striate, pilose with spreading white hairs: lower leaves linear, entire, 2-6 cm. long; upper ones broader, 3-5-cleft near the apex into linear lobes, the middle lobe longest; floral leaves broader, the middle lobe generally irregularly 2-5-cleft, the ultimate division often broadening at the apex, greenish-yellow, surpassing the flowers: calyx with membranous tube enclosing the corolla and with four lanceolate-filiform divisions, equal or unequal, extending below to the ovary and above to the throat of the corolla, greenish-yellow: corolla the same color, 2 cm. long; upper lip straight, slightly surpassing the lower, obtuse; lower lip 3-cleft with oblong, obtuse divisions, 2 mm. long, plicate below: stamens with glabrous filaments and 2-celled anthers, the cells unequal: style exserted; stigma capitate; ovary acute, minutely papillose: seeds 1 mm. long, the outer coat membranous, deeply pitted.

This is probably one of the forms included under *Orthocarpus pilosus* Watson. The leaves are not divaricately lobed as in that

species, the divisions of the calyx are equally cleft and much narrower, the corolla is longer with the divisions more nearly equal in length, and the seeds are more membranous and more deeply pitted. I have compared it with specimens of *O. pilosus* collected near Lake Tahoe and Summit Station on the C. P. R. R. This is in the same region as the original collection, Washoe county, Nevada.

This species came from Warner Mountains, Oregon and was collected by Mrs. Bruce, July, 1898 (no. 2240).

Type in the herbarium of the California Academy of Sciences.

Spraguea pulchella

Apparently annual, low, with slender decumbent stems, glabrous throughout: radical leaves spatulate on long margined petioles, longer than the blades, together 5–20 mm., purplish, entire, obtuse; cauline leaves of two kinds, one like the radical leaves but smaller, the others bract-like: flowers in scorpioid subcapitate spikes, closely imbricated, at the ends of slender divaricately spreading branches; pedicels short; bractlets broadly ovate-cordate, rose-color, membranous: {sepals somewhat unequal, orbicular, emarginate at apex, reniform at base, rose-color with darker or somewhat greenish stripe down the middle, 3 mm. in diameter: petals 4, oblong to linear, acute, thin, veiny, conniving over the ovary after anthesis, slightly over 2 mm. long: filaments about as long as the petals, filiform: anthers elliptical, .5 mm. long, yellow, not exserted: style long and slender, the two-cleft apex surpassing the corolla: ovary with 1–2 ovules on slender funiculi: seeds the same number, showing through the diaphanous walls of the orbicular capsule, brown when ripe.

This comes nearest to *Calyptridium monospermum* Greene. It differs in the shape of the sepals and petals, in having invariably not more than two ovules, while *C. monospermum* has from one to several, ripening 1 or 2 seeds. The panicle is more open and the entire plant more slender and delicate. My specimens were compared with the duplicate of the type, no. 2135 of the Death Valley Expedition, collected in Big Cottonwood Meadows by F. W. Koch. It was kindly loaned me by F. V. Coville, Chief of the Division of Botany, Department of Agriculture, Washington, D. C.

This species was collected by Mr. J. W. Congdon near Pea Ridge road, Mariposa county, California, April 19, 1901.

Type in the herbarium of the California Academy of Sciences.

Sidalcea rostrata

Perennial from a rather short horizontal rootstock which is generally conspicuously verrucose with the old axillary buds: stem erect, 3 to 4 dm. high, sparingly hispid with simple forked or stellate spreading or irregularly appressed hairs, obtusely angled: leaves strongly nerved, pubescence as on the stem but more abundant, especially on the petioles; radical leaves orbicular reniform, 5 cm. broad, crenate with every alternate sinus deeper, on ribbed petioles 6 to 15 cm. long; cauline leaves similar in outline, on shorter petioles, diminishing upwards, 7-lobed, the lobes again lobed or deeply crenate-dentate; stipules ovate-lanceolate, 5 mm. long, soon deciduous: inflorescence racemose-spicate, of about 16 flowers: lower bracts 5-parted into lanceolate divisions, surpassing the calyx, upper ones becoming more simple and smaller, not equalling the calyx: pedicels 5 to 10 mm. long: calyx open-campanulate, deeply parted into 5 deltoid-acuminate divisions about 1 cm. long, densely hispid externally with conspicuous spreading hairs, tomentose within at the apex and along the margin: petals rose-purple, obovate, 2.2 cm. long, 1.8 cm. wide, glabrous, veiny, densely ciliate at base above the broad short claw, deeply emarginate or cordate at apex with margin somewhat erose: staminal column double, hispid: phalanges distinct, the outer less divided than the inner: anthers dark purple, papillose: carpels (immature) 8, sparingly pubescent, conspicuously rostrate with the yellowish beak densely hispid.

This was collected by H. E. Brown near Mendocino, California, June, 1898 (no. 815).

Type in the herbarium of the California Academy of Sciences.

This species belongs to the group of closely allied species where *Sidalcea malvaeflora* Moc. & Sess., is found. The carpels are, however, quite unlike those of any other species of the group and would be sufficient to mark it as distinct were it not for the other characteristic features.

Stachys flaccida

Perennial, from running rootstocks: stems stout, hollow, erect, about 10 dm. high, nearly glabrous below except for the pustulate retrorse bristles on the four prominent angles: leaves ovate-cordate, acute at apex, crenate, thin and flaccid, 10–13 cm. long, 5–8 cm. wide, woolly pubescent on the lower surface with irregularly appressed iridescent, fine white hairs, the pubescence on the upper surface more regularly appressed but less dense; petioles

equalling or a little shorter than the blades, broad, flat, nerved, densely ciliate, clasping the stem and forming conspicuous nodes: spike leafy at base, about 15 cm. long, the leaves diminishing to linear-oblong bracts; peduncles densely glandular-villous; verticels 1-3 cm. apart, generally 4-flowered: calyx villous-pubescent and glandular, obliquely 2-lipped on pedicels, 1.5 mm. long; divisions deltoid, aristate, 3-nerved, about 9 mm. long, the two lower divisions somewhat shorter than the three upper, all shorter than the campanulate tube: corolla rose-color; tube 2 cm. long, villous-arachnoid; upper lip glandular-villous, rounded or truncate, about half as long as the lower lip; lower lip 3-lobed, the middle lobe hooded, surpassing the auriculate lateral lobes and hoary within: stamens inserted on the throat; filaments flattened, bearded, not exserted: divisions of the stigma equal; styles shorter than the filaments: nutlets immature.

This is nearest to *Stachys Chamissonis* F. & M. (Linnaea, Suppl., 6: 80), of which it might be considered a variety. The flaccid foliage and smaller flowers are more suggestive of *S. ciliata* but the leaves are not acuminate as in that species. It appears to be an intermediate form for which at present a specific name seems better than a varietal, applied to either species. The type locality of *S. Chamissonis* is not given but it was collected by Chamisso and probably some place not far from San Francisco. Compared with specimens collected at Lake Merced near San Francisco this differs, besides in regard to the characteristics mentioned above, in having longer petioles and much more scanty pubescence.

This was collected by H. E. Brown near Mendocino, California, May, 1898. It is no. 836 of his collection. Type in the herbarium of the California Academy of Sciences.

Trifolium tenerum

Perennial, matted-caespitose, from running rootstocks, canescent and softly villous throughout with fine white loosely-spreading hairs: leaves, in general, longer than the internodes; petioles filiform, about as long as the leaflets; these 3, narrowly elliptical to oblanceolate, 5-10 mm. long, 1-2 mm. wide, aristate-acuminate; margin setosely serrulate; surface with conspicuous veins, terminating in the marginal setae, the lower more pilose than the upper; stipules 8 mm. long, adnate for more than one half their length; lower part scarious, veiny; the free upper portion green, subulate-aristate, serrulate: heads few-flowered (1-6), on filiform peduncles which are shorter or longer than the leaves;

involucre glabrous, very small, of 2-5 separate, laciniate-aristate bracts, 2-4 mm. long: flowers 1 cm. or so long, on pedicels less than 1 mm. long: calyx open-campanulate, with subulate aristate divisions a little longer than the tube; tube membranous between the strong veins: corolla long and slender; banner with 3 rounded teeth at the truncate apex; wings slender, as long as the banner, auriculate at base of blade; keel two thirds as long, tipped with an obtuse erect beak, the keel itself purple, auricled at base: ovary obovate, pilose at summit, 1-ovuled.

This seems to be the nearest to *T. pauciflorum* Nutt. from which it differs in habit, pubescence, leaves, flowers, ovary, etc.

It is one of the clovers which carpet the ground in the higher meadows on the trail to the south fork of King's River. It was collected by the writer at Summit and Bearskin Meadows, July 1-13, 1899. The first named specimens are considered the type specimens. Type in the herbarium of the California Academy of Sciences.

Explanation of Plates

PLATE 6. *Fritillaria Purdyi* Eastwood

1. Plant, natural size. 2. The bulb and roots. 3. The perianth spread out. 4. An outer division of the perianth. 5. The ripe capsule. (All natural size.)

PLATE 7. *Monotropa Californica* Eastwood

1. A single stem, natural size. 2, 3. Sepals. 4. Petals. 5. Pistil. 6. Front view of anther before it opens. 7. Back view of same. 8. Anther discharging pollen. 9. Appearance after the pollen has been discharged. The parts of the flowers are all enlarged five times.